



Pg 1)

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1) a has a larger probability to win while b has a smaller probability to win (according to the example given).

2) $\frac{6}{10} = \frac{3}{5}$

According to the example (WLWLWLWLWW), the probability of I win the first ~~two~~ points is $\frac{3}{5}$.

3) $P(A \cap B) = P(A) \times P(B|A)$

Let A be the event that I ~~score~~ a point in the second point.

Let B be the event that I score a point in the third point.

~~$\frac{2}{3} \times \frac{1}{2}$~~ $P(\text{Probability that the game lasts for 3 points and I win}) = \frac{2}{3} \times \frac{1}{2}$
 $= \frac{1}{3}$

1

4) $P(A \cap B) = P(A) \times P(B|A)$

Let A be the event that I score a point in the third point.

Let B be the event that I score a point in the fourth point.

~~$\frac{2}{3} \times \frac{1}{2}$~~ $P(\text{Probability that the game lasts for 4 points & I win}) = \frac{3}{4} \times \frac{1}{2}$
 $= \frac{1}{2}$

4i) $P(A \cap B) = P(A) \times P(B|A)$

Let A be the event that I score a point in the fourth point

Let B be the event that I score a point in the fifth point

$P(\text{Probability that the game lasts for 5 points & I win}) = \frac{4}{5} \times \frac{3}{4}$

ii) $P(A \cap B) = P(A) \times P(B|A)$

Pg 2)

Let A be the event that I score a point in the fifth point.
 Let B be the event that I score a point in the sixth point.

$$\frac{5}{6} \times \frac{4}{5} P(\text{the probability that the game lasts for 6 points \& I win}) = \frac{5}{6} \times \frac{4}{5} = \frac{2}{3}$$

iii) $P(A \cap B) = P(A) \times P(B|A)$ sixth
 Let A be the event that I score a point in the ~~fifth~~ point.
 Let B be the event that I score a point in the seventh point.

$$P(\text{the probability that the game lasts for 7 points and I win}) = \frac{6}{7} \times \frac{5}{6} = \frac{5}{7}$$

5) I find the pattern that the more games "I" play, the probability of winning the game is closer to 1.

6) Let a be the event that I score a point in N^{th} point.
 Let b be the event that I score a point in N^{th} points and win.
 $P(A \cap B) = P(A) \times P(B|A)$, apply formula
 ~~$a \times b = N^{\text{th}}$~~ $N = P(A) \times P(B|A)$

7) ~~$0.6 \times 5 = 5$~~
 ~~5~~

If $a = 0.6$, the fraction form will be $\frac{6}{10} = \frac{3}{5}$.
 Therefore ~~Here~~ we can see that the probability is lower than 0.625.



Pg 3

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8) The question is a dependent event because you can only win if you have won two consecutive points. Therefore, I have set the formula of $N = P(A) \times P(B|A)$ which means that A must happen the B will happen. ~~For example,~~ ⑧